FRONTDAQ 20

High speed acquisition module with universal synchronized inputs and embedded webserver software

FrontDaq system is a high speed acquisition module (7680 Hz/channel) with 20 analogue synchronized inputs (1 A/D converter per channel) and 20 TTL inputs / outputs.

- Process: Voltage, current, resistance, strain gauges
- Temperature: Thermocouples, resistive probes
- 20 universal analogue inputs, 2 limits per channel,
- 4 analogue outputs, 20 TTL inputs / outputs
- 5 configurable triggers
- Communication: Ethernet TCP/IP, RS 232, USB (GSM / GPS in option)

Description

FrontDaq system is a high speed acquisition module (7680 Hz/channel) with 20 analogue synchronized inputs (1 A/D converter per channel) and 20 TTL inputs / outputs.

All necessary configuration and management software (WEB server technology) are embedded into the plug-and-play system and allow remote control of the acquisition through any web browser: Setup, start, result display, monitoring and data exportation. FrontDaq 20 memory capacity (internal of 660,000 samples / channel and external via CF card, allows several months of data to be recorded. FrontDaq 20 meet therefore the various requirements of monitoring and survey applications on the field as well as on test bench.

FrontDaq 20 perform measurement, monitoring and recording of analogue and digital signals coming from sensors of physical or electrical values. These signals can be:

- Voltage: 0-10 V
- Current: 0-20 and 4-20 mA with external shunts
- Thermocouples: Type K/T/J/N/E/R/S/B with or without cold junction compensation
- Resistance: 2400 Ω
- RTD: Temperature sensors (Pt100 / 500 / 1000) in 2, 3 or 4 wires
- Frequency: up to 10 kHz measuring frequency and counting
- Strain gauges

Fast and still accurate, FrontDaq 20 modules perform acquisition from every input simultaneously up to 7680 samples / s / channel, i.e. a period of 120 µs. Measurement can be performed with different frequencies, resolutions, trigger conditions and types of inputs, making FrontDaq 20 perfect for measurement and control of very fast phenomenon.

Channels being synchronized, the scanning speed does not depend on the number of channels scanned and recorded. The instruments are freed from multiplexer constraints: regardless of the number of channels acquired, the speed will remain optimum. Additional FrontDaq 20 can be connected together to extend the number of inputs available and make a network.

Accurate monitoring and flexibility are ensured with:

- 2 limits per channel, 20 universal analogue inputs with 1 ADC 24 bytes per channel
- 4 analogue 0-10 V outputs
- 20 TTL inputs/outputs
- 5 programmable triggers
- Ethernet TCP/IP, RS 232, USB (GSM / GPS in option)

Specifications

Specifications and performances in temperature @23°C ±5°C

Uncertainty is given in % of reading + fixed value.

Resistive probes: Measurement

Type	Range	Resolution	Accuracy / 1 year (< 150 samples / s)
Pt100	-220°C to +850°C	0.01°C	0.01°C
Pt500 (= 3851)	-220°C to +850°C	0.05°C	0.05°C
Pt1000 (= 3851)	-220°C to +400°C	0.03°C	0.03°C

Thermocouples: Measurement

Type	Range	Resolution	Accuracy / 1 year (< 150 samples / s)
K	-180 to +1300°C	1.2°C	1.2°C
T	-250 to +400°C	1.1°C	1.1°C
J	-180 to +750°C	0.09°C	0.09°C
N	-270 to +1300°C	1.7°C	1.7°C
E	-40 to +900°C	0.7°C	0.7°C

Thermocouples type R, S, B: For specifications, refer to the instruction manual (Available on request)

Specifications and performances in process @23°C ±5°C

DC voltage: Measurement

Range	Measuring range	Resolution	Accuracy / 1 year (< 150 samples / s)
1 V	-15 m V à to1 V	100 nV	10 µV
10 V	-1 V to +10 V	50 µV	100 µV

Input impedance:
100 kΩ for 1 V range
14 kΩ for 10 V range
Temperature coefficient: < 6 ppm/°C beyond reference domain

DC current: Measurement

With or without loop supply

Range	Measuring range	Resolution	Accuracy / 1 year (< 150 samples / s)
0-20 mA	0 mA to 20 mA	100 nV	10 µV
4-20 mA	4 mA to 20 mA	50 µV	100 µV

With external shunt

Resistance: Measurement

Range	Measuring range	Resolution	Accuracy / 1 year (< 150 samples / s)
2400 Ω	35 to 2400 Ω	0.1 Ω	0.1 Ω

Strain gauges: Measurement

Type	Range	Accuracy / 1 year (< 150 samples / s)
1 /1	See voltage range	50 µStr.
1 / 4		
1 / 2		

Temperature coefficient: < 5 %Str./°C beyond reference domain

Specifications and performances in process @23°C ±5°C

Analogue output

Range	Measuring range	Accuracy / 1 year (< 150 samples / s)
0-10 V	0 V to +10 V	0.05% RDG

Maximum measuring current: < 5 mA

TTL inputs / outputs

Type	Low limit	High limit
TTL input	0.8 V	2 V
TTL output	0.1 V @ 50 µA	4.4 V @ 50 µA
	0.36 V @ 8 mA	3.9 V]@ 8 mA

TTL input: maximum voltage: 7 V
TTL output: maximum current: ±20 mA
Maximum admissible load: 50 kΩ

Further features

Scanning rate	FrontDaq 20 modules scan every channel

	synchronously (1 ADC per channel) up to 7,680 samples / s / channel. The scanning rate totally independent of the number of channels under acquisition.
Alarms	Every channel can be configured with 2 alarms levels for monitoring purposes.
Linearization	Every channel can be scaled for sensor correction or scaling.

General specifications

Size	211.5 x 194.7 x 57 mm
Weight	800 g
Power supply	12-28 V (9-32 V) – 1 A max
Battery (option)	Type: NiMh Battery life: 10 h
Communication ports	TCP/IP, USB, RS 232, RS 485, (GSM, GPS in option)
Storage capacity	Internal of 660,000 values External on CF card

Environmental specifications

Reference range	23°C ±5°C (RH: 45 to 75 % condensing)
Operating reference range	-10 to 50°C (RH: 20 to 80 % condensing)
Storage temperature limits	-40°C to +80°C

Models and accessories

Instrument:

FD20-256 20-channel fast acquisition system with webserver

Delivered in standard with:

- User manual
- Power adapter
- Crossed Ethernet cable

Screwing connector interface board

- Installation CD with drivers and utilities
- Factory test report

Accessories:

ACFD20-1 Screwing connector interface board

12513-003 Additional power supply 90-264 V / 12 V

ATFD20 Carrying case

12513-010 Battery pack 12 / 24 V + charger (10 hours, NiMh)

012513-035 ASP light / advanced counters (uncount, PWM…)

012513-031 Multicurve data viewer

VISULOG Monitoring software 32 bits full version 1 3 179 3 179

Software:

VISULOG Monitoring & data processing software full version – 1 licence

VISULOG-ETAL Monitoring & data processing software full version – 1 licence
+ Calibration module

VISULOG-PHARMA Monitoring & data processing software full version – 1 licence
+ Module for advanced management of access rights, 21 CFR Part 11 compliant

VISULOG-ETAL-PHARMA Monitoring & data processing software full version – 1 licence
+ Calibration module
+ Module for advanced management of access rights, 21 CFR Part 11 compliant

Software licences:

LIC VISU	Additional license for VISULOG
LIC VISU ETAL	Additional license for VISULOG with ETAL optional module
LIC VISU PHARMA	Additional license for VISULOG with PHARMA optional module
LIC VISU ETAL PHARMA	Additional license for VISULOG with ETAL and PHARMA optional module
LIC VISULOG WEB	License for VISULOG WEB

Certification:

QMA11EN	COFRAC certificate of calibration
	With all relevant data points where the device has been tested

Packing information:

Size	211.5 x 194.7 x 57 mm
Weight	800 g